

Tauszky (R)

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Menstruation,

THEIR

CAUSES AND TREATMENT.

BY

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OF NEW YORK.



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LECTURES DELIVERED AT THE MT. SINAI HOSPITAL,

OUT-DOOR DEPARTMENT,

BY

RUDOLF TAUSZKY, M. D.



THE OVULATION AND OTHER THEORIES OF MENSTRUATION.—THE ANOMALIES OF MENSTRUATION, THEIR APPRECIABLE CAUSES AND TREATMENT.

GENTLEMEN :—The subject which I present to you to-day embraces the different irregularities of menstruation, their causes, and the treatment which I have found most appropriate for their cure; or, where a permanent relief could not be obtained, the measures which I have experienced to be efficient in palliating the symptoms caused by a too-abundant or too-scanty flow of blood from the genital organs of the patients who came under my care. My observations and their results, which I herewith bring before you, are based upon an examination of over two thousand patients. Before considering, however, what the irregularities of the sanguineous flow from the female genitals are due to, I crave your indulgence for devoting a few moments to the study of what was formerly understood to be, and what we know to-day, regarding normal menstruation. In 1876, Dr. Mary Putnam Jacobi, of this city, published a highly instructive and useful book, for which she obtained the Boylston prize, entitled: “Do women require mental and bodily rest during menstruation?” You will permit me to quote it as a good authority upon this important subject, bearing as it does upon many points to which I wish to call your especial attention. The views set forth by Dr. J. embrace everything that was known from the time of Hippocrates to that of the publication of this valuable essay regarding menstruation. I shall also make use of a publication in the *London Lancet*, No. X., 1878, from the pen of Dr. Aldridge George, as being a recent view as to the process and cause of menstruation, which the editor of the *Lancet* thinks highly plausible, and therefore deserves notice from us in this connection. These quotations will convince you that the opinions, even to-day, greatly vary, although expressed by the highest authorities in the field of medical researches. Some authors considered menstruation a hereditary disease, developed by civilization; others attributed it to the upright position of the human female; next came the plethoric theory.

Boerhave and Haller thought the female organism contains more blood than is necessary for its nutrition in health, the superfluous fluid is discharged per uterum. Wagner says, the evacuation of the menstrual fluid is nothing more than the elimination under a special form of superfluous productive material; before the ovulation theory had been considered as a proof of an excess of nutritive force in the sex upon whom devolved the greatest cost of reproduction. These were the views of all the learned men from Hippocrates to Burdach. In 1845, Dr. J. further says: “The congestion of the ovary, ripening of the ovule, effusion of the serum of the blood into the Graafian follicle, its

rupture, the escape of the reproductive cell, its seizure by the fimbriæ of the Fallopian tube, its journey along the oviduct and descent into the uterus, hyperæmia of the latter, the turgescence of its mucous membrane, the rupture of its blood-vessels and local hemorrhage were considered as explaining menstruation." Dr. Power, in his "Essays on the Female Economy," attributes menstruation entirely to the action of the ovaries, and maintains that a woman menstruates because she does not conceive. Dr. J. (loco citato) gives the date of the ovulation theory as first enunciated by Burdach as 1845. This I think to be an error, since Dr. Friend, in his *Emmenologia*, 1729, alludes already to the influence of ovulation upon menstruation. Dr. J. Marion Sims, in his *Uterine Surgery*, also states that menstruation is a sign of ovulation. Graily Hewitt considers menstruation as invariably accompanying ovulation, and adds, furthermore, as a proof of this, that where the ovaries are absent menstruation does not take place. Many authorities of note, too numerous to mention, hold the same view even to this day. That this view is not entirely correct is proved by the fact that in cases where both ovaries had been removed, and consequently no ovulation could have taken place after their removal, menstruation still continued as before. Such instances have come under my personal observation. Eight such, where both ovaries had been removed on account of their degeneration, have been reported in Dr. Mundés *American Journal of Obstetrics*—the women still continued to menstruate. Two similar ones were observed and published by Prof. Dumreicher, of Vienna. One I have seen in the service of Dr. Nathan Bozeman of this city, in the N. Y. Womans' Hospital.

Let us now examine what Dr. Aldridge George presents as his theory of normal menstruation.

Dr. A. G. says: "In childhood and adolescence, the ingestion and assimilation of nutriments is great, because it must not only supply the wants of the body, but also its growth. Girls weigh less at birth than boys, nevertheless females develop sooner than males. Girls grow faster seven years preceding puberty than boys. They are endowed with the force of rapid development, their apparatus for the manufacture of blood is more productive. With the occurrence of puberty, however, this greater production of blood is directed to the organs of reproduction and lactation. These organs develop and enlarge, their blood supply is increased, the vessels become distended. The effect is fullness of the loins and back,—weight and distention of the heart—which all increase until the menses occur. There now occurs, in consequence of this congestion of blood in the uterus and turgescence of the Fallopian tubes, a rupture of the Graafian vesicles. Fothergill stated in a discussion on haemoptysis: The accident occurred in persons liable to sudden congestions. It was a leak, and the weakest point in the system yields first. In young girls whose blood production is rapid, the uterine mucosa is the weakest, least resisting part. When the tension reaches a certain degree, the delicate capillaries burst and hemorrhage occurs, the tension diminished, distress of the so-called menstrual molimen ceases. In pregnancy, the growth of the fetus and the uterus effect the equilibrium in the vessels, and, in lactation the excess of nutritious matter elaborates the milk, so that it seldom happens that the menses show themselves at this period. When a woman is seriously sick, in the inceptive stage of phthisis for instance, the absence of the menses is a symptom of the disease. Disturbed nutrition leading to defective blood production and reduction of vascular tension. The most recent theory, which I will only briefly refer to, has been advanced by Dr. Kundrat, now Professor in Graz, Austria, and Dr. Engelmann, Jr., of St. Louis, Mo., and also by Williams, of London. These observers have found that menstruation is due to a desqua-

mation of the endometrium, by which the blood vessels are laid bare. Secondly, contraction of the uterine fibers takes place by which blood is forced out through the superficial vessels. The mucous membrane swells from one to three and even six millimeters in thickness, is soft, tumefied, injected in spots, or uniformly reddened; the openings of the glands are always enlarged, and an opaque, whitish mucous poured out. The blood vessels are distended. All these changes are confined to the superficial layer. No proliferation of blood vessels takes place. A fatty degeneration of the cells of the mucosa cause its shedding and consequent menstruation. The superficial vessels being laid bare, rupture and oozing of blood follow.

After having given you the views held regarding the function under consideration, I have to refer in this place to a fact with which you are, in all probability, already familiar, viz.: The great variations regarding the time of the first appearance of menstruation, the quality, the quantity of the blood discharged, the duration of the catamenial flow, the final cessation of these, etc. Reliable statistical data, relating only to what was considered by the observers to have been cases of normal menstruation, are found in large numbers by reference to the literature of this subject. I will select but a few, in order to convince you that the variations of the first appearance of menstruation are very great indeed, some healthy women commencing to menstruate at a very early age, and others at a very late period of their lives, many years after puberty, and with all enjoying perfect health, being, therefore a normal menstruation in the strictest sense of the word. As a general rule, however, according to my experience in all the women I have closely questioned referring to these points, I have found in this country the first menstruation to take place in the majority of cases between the ages of fourteen and eighteen years, and this function to cease forever at the age of from forty to forty-eight, excepting, normally, of course, the time of pregnancy and that of lactation. Some few women I have met with in my practice who menstruated usually the first three months of their pregnancies; others even continued to be regular for four, five and six months after impregnation. One of these had given birth to three living children, at full term, and had seven miscarriages, on account of a chronic metritis with retroversion of the uterus and fibroid in the posterior wall of the uterus (interstitial). As stated above, I have attended several women who continued to menstruate regularly even during the time of lactation. The duration of the flow in the majority of my cases I found to be from three to five days; and as Sims has it in his work on Uterine Surgery, necessitating the change of three or four napkins in twenty-four hours. How great the variations of normal menstruation are will be evident from the following quotation from the "Archiv fur Pathologische Anatomie und Physiologie von Rudolf v. Virchow," compiled by Carl Westhof, entitled: "Ueber die Zeit des Eintrittes der Menstruation nach Angabe von 3,000 Schwangeren in der Konigl. Universitats entbindungs anstalt zu Marburg

The menses occurred first—

At 14 years of age, 1 in 16 cases.	At 21 years of age, 1 in 23 cases.
" 15 " " 1 " 9 "	" 22 " " 1 " 48 "
" 16 " " 1 " 6 "	" 23 " " 1 " 104 "
" 18 " " 1 " 5 "	" 24 " " 1 " 50 "
" 19 " " 1 " 10 "	" 25 and 28 " " 0 " 2 "
" 20 " " 1 " 9 "	" 26 " " 0 " 1 "

Carl Rokitansky mentions a case of a girl four years and a half old who menstruated regularly, and was shown to the Gesellschaft d. Arzte, in Vienna.

Cases are on record in large numbers where normal menstruation commenced at the age of three years; nay, even at two years. See Casper's *Wochenschrift*, 1838. There is reported a child one year old having regularly menstruated.

Still more remarkable is the case related by Dr Martin Wall in the second volume of the *Medical Chirurgical Transactions*, of a child who menstruated at nine months of her age, and continued regular subsequently. Lobstein, Meyer, Plonquet, report similar cases. See Churchill on "Diseases of Females," 1839. Bouchut, Nov., 1876, relates a case of normal menstruation in a child twenty-two months old. Leiber, in Berlin, reports in *Casper's Weekly*, 1833, that the now three-year-old girl was attacked three months ago with burning pains in the abdomen. She had congestion toward the head and general malaise; besides this, the abdomen became greatly tumefied—hard. After these symptoms lasted several days, a leucorrhœa, and on the following day some few drops of blood were noticed by the mother on the chemise and the loins of the child, but she attached no importance to this; the following month about the same time the molimina menstrualia reappeared, but not so intensely as at first, and being preceded by a white discharge from the genitals—leucorrhœa. A little blood appeared from the same organs; the third month the same happened. The bodily and mental development of the child corresponds to its age. The pudenda similar to those of other children. No hairs upon the mons veneris, but the breasts are considerably elevated and the glands have the size of small peas.

Susewind in *Braunfels* (Casper's *Wochenschrift*), 1838, saw a child two years old in Werdorf which menstruated since it was one year old. Every four weeks the same thing occurred in this remarkable child, lasting two days each time. The genitals were developed out of proportion to the age; the very prominent and strong labia majora were covered with curly and darkish hairs; the breasts of the size of a large apple, with large, rose-colored areolæ and strong, well-developed nipples. In short, the child looked like a girl of fifteen or sixteen years old en miniature.

Bouchut gives the following case: Nellie O., born in London, the 27th day of January, 1872, fourth daughter of a family of six children, showed all the signs of precocity regarding the premature development of the genital organs. She is now four years old, she is very strong and well, regular formation of body, round form, weighs fifty-two pounds. Already at birth the parents were surprised at the development of this child's breasts, which showed the size of a small apple. At twenty-two months of age periods appeared, and returned every four weeks. The flow lasts every time 4-6 days, and is of the same quality as in grown women. Some malaise precedes the appearance of the menses (the child already knows what is coming). The breasts were the size of a man's fist, with rosy areolæ and a central elevation in which lay the nipple. The breasts swell before the menstruation appears, the mons veneris is covered with hair, the external genitals developed like the breasts. She does not participate in the plays of other children. Bouchut asks whether in this case, also, menstruation could be considered to be caused by ovulation? I have repeatedly seen girl's who menstruated at the age of ten years, and one of my patients, who though perfectly developed, was twenty-eight years old, married two years—nullipara—had never menstruated, and though in perfect health, and of robust conformation, consulted me on account of her amenorrhœa and sterility, for which I could detect no cause by a most thorough and careful examination. The genital organs, as far as could be ascertained, so also her breasts, were in every way well developed.

In England Alexander reports the following ages at which menstruation occurs :

Out of 700 cases examined—

At 11 years 1 in 45.	At 16 years 1 in 6.
" 12 " 1 in 23.	" 17 " 1 in 8.
" 13 " 1 in 8.	" 18 " 1 in 17.
" 14 " 1 in 5.	" 19 " 1 in 19.
" 15 " 1 in 6.	" 20 " 1 in 112.

Regarding the duration of the flow Westhoff found the following. It lasted five days in 1,121:

The extremes 1 day in 4 cases.	The extremes 8 days in 220 cases.
" 2 days in 70 "	" 3 " " 215 "
" 10 " " 1 "	" 4 " " 101 "
" 14 " " 5 "	

In these cases 1 in 1,000 menstruated at 10 years.

" " 3 " " 9 girls	" 11 "
" " 1 " 187, 12 "	" 16 "
" " 1 " 55, 55 "	" 13 "

In Alexander's cases the duration was—½ to 1 day, 1 case ; 1 to 2 days, 9 cases ; 8 to 9 days, 7 cases ; 8 to 14 days, 2 cases ; 9 to 10 days, 2 cases ; 10 to 12 days, 1 case.

The majority, 146 cases, 3 to 4 days ; 85 cases, 4 to 5 days ; 59 cases, 2 to 3 days ; 47 cases, 5 to 6 days.

Similarly interesting tables may be found related by Dr. Hanover in Kopenhagen, entitled "Communication sur le Phenomenon de la Menstruation—extrait de l'academie R. de Belgique, 1869, 2me serie. Tom. 28; also Gazette des Hospitaux, Nov. 21, 1876 ; also Zeitschrift fur Geburtshulfe ix., page 173, by O. Wachs, entitled "Ein Fall von vorzüglicher Menstruation bei einem dreijährigen Kinde." He says : The early occurrence of menstruation must be considered as a process, which is generally not known to the majority of physicians, since among hundreds of busy practitioners only one has the opportunity of seeing such a case. On account of its rarity this menstratio præcox may be classed with the rare cases of vicarious menstruation, the so-called nervous pregnancy, the doctrine of partus post-mortem and similar occurrences. The enumeration and publication of such cases has therefore the value of convincing those who are incredulous and disbelievers of such occurrences in giving them names, and dates, and to thus adding to their literary attainments. The relative infrequency of so called menstratio præcox makes it justifiable to publish every case that presents itself in order to enable us to draw scientific conclusions regarding these peculiar phenomena, and to utilize them in our practice.

The author then quotes similar cases that have been seen and described by Halpart van der Wiel, 1687, the child menstruated when one year old. Frederick Decker's mentions two cases, one of one the other of two years old—the latter died after having menstruated three times. N. Tulpus had a case of a child which menstruated from her first to eighth year. Theod. Kerkring mentions a woman who menstruated during her pregnancy every month so that there was a doubt whether she was pregnant, but finally she was delivered of a girl, the new born child menstruated when fifteen days old, this occurred every month for three successive periods, when the child died. Cornel. Seling cites a case of a girl who lived in 1679, whom he attended professionally, and who had her periods every month, commencing two days after its birth.

Bartholinus mentions a girl nine years old. Trentling, one who had milk in her breasts at birth, and menstruated from her third to fourteenth year, then it stopped two years and returned again.

There are cases on record where the early appearance of menstruation was considered the cause of death. Pechlin saw a girl who menstruated at three years and died when five; another case by Turv, the child menstruated at four and died when eight years old. Boerhave, Lobstein, Stark in Jena, Von Schaeffer, cites the case of a girl menstruating at six, she weighed 150 pounds, her genitals were fully developed like those of a grown girl. Dr. Comarmond, in Lyon, published a case of a girl three months old which menstruated, and alarmed her mother by the size of her large breasts; her genitals and axillary pits were covered with hairs; the catamenia continued up to the twenty-seventh month of her age regularly, after that the child passed out of the reporter's observation. Carus saw a child five days old who menstruated for two days without affecting its health in the least. V. Lenhossek observed a girl which menstruated when ten months old—when two years old it had fully developed breasts and the genitals were covered with hairs. Des-curet Gedicke saw a child nine years old as fully developed as a maiden of eighteen years—she menstruated first when nine months old.

Dieffenbach, D'Outrepont relates similar extraordinary cases; in one of these the catamenia continued even during lactation, and also conception took place at the same time—menstruation did not cease during the whole period of gestation. Ramon de la Sagra found the breasts of a new born black girl very well developed, and menstruated soon after its birth. Munchmeyer Wilde relates similar cases. Lebeau saw in New Orleans, December 31, 1827, a girl with well developed breasts and the mons veneris covered with hairs. She menstruated regularly when three years old. A most interesting case of this kind is related by Th. B. Peacock, (Precocious Puberty, in the *London Medical Gazette*, new series, vol. i, 1840, p. 548.) Astley Cooper described the history of a girl who menstruated at three years of her age; this child when four and a half years old had breasts developed like a woman aged twenty years. Scanzoni in his work on "Gynæcologie," also mentions a case having occurred in his own practice, where a child eight years old looked like one of fourteen years, and had menstruated regularly. Mayer's *Systmatisches Handbuch der Blutflusse*, Hilger's Dissertation, Moser's Additions to Brierre de Boismont work, which received a prize from the Academy of Medicine of Paris, entitled "The Menstruation in its Physiol., Pathol., and Therapeutic Relations," contains the account of similar cases. The authorities named are of such high standing in our profession that their statements cannot be doubted by the most skeptic, so that you will now be convinced of the truth of my assertion that precocious menstruation does really exist, although a rare occurrence.

The statistics given further prove that this early menstruation not only takes place between the fourteenth and tenth year, but between the first and seventh; nay, even at birth. During the last century such cases were simply related as curiosities, without any comments, while those published recently are also given in a vague manner, without entering into the study of this most important subject, especially regarding its causation, its damaging influence upon the girl's health who menstruates thus early, and the appropriate treatment which might prevent it. The answer why some girls menstruate so early is not yet sufficiently studied, and Wachs is correct in stating further, that as we have only meagre accounts of these occurrences, and no post-mortem examinations that would give us a clue to their causation, the time of

the first appearance of the teeth, and many other points will have to be studied first before we will be able to have some understanding regarding this precocious menstruation. Whether in these cases there is also present an anomaly of the cerebrum or cerebellum is not yet satisfactorily proved.

Since, therefore, there are yet many questions referring to precocious menstruation which are not yet understood, Dr. Wachs very properly suggests to collect carefully all such cases for the purpose of study. Now and then there may be an opportunity offered to make a post-mortem examination of such cases and to carefully compare the symptoms during life with the appearances found after death - we might then succeed to study the genesis of this puzzling occurrence.

From the facts enumerated it seems to me conclusively proved that ovulation and menstruation do not stand in the relation of cause and effect to each other, but are two physiological processes-taking place in the human female independently from each other. I, therefore, gentlemen, think we must now give up the ovulation theory of menstruation, so-called, and heartily concur with the views regarding this subject, published recently by Beigel, which are the following:

Menstruation and Ovulation. -Dr. H. Beigel, late of Vienna, says: We have defined menstruation as a periodically recurring sexual impulse, where in consequence of a fullness of the capillary blood vessels of the mucous membrane of the uterus, and probably also of the Fallopian tubes, a flow of blood takes place from these parts. A direct connection between ovulation and menstruation does not exist ; on the contrary, both these functions are independent from each other, and if one has any influence upon the other, the ovulation is materially aided and benefitted by menstruation. When Negrier advanced the assertion that at each menstrual period a Graafian vesicle bursts and empties an ovule, this doctrine found a strong advocate even in Bischoff. Other authorities, like Remak, expressed the view that this assertion was based only upon a hypothesis which required further proof and observation. To-day we have sufficient positive proof that this hypothesis is entirely untenable. Many cases are on record where women died during menstruation and no rupture of a Graafian follicle had taken place at the time. (Paget, Ritchie and John Williams reported such, see Tilt on "Uterine and Ovarian Inflammation, London, 1862, p. 64. Contributions to assist the study of Ovarian Physiology and Pathology, London, 1865, and note on the Discharge of Ova. Proceedings of the Royal Society, 1875, No. 162.)

The cases are not rare, and prove the disconnection between menstruation and ovulation - where women become pregnant without ever having menstruated. Busch—(see Dewess "Diseases of Women," 1837, p. 34, in Moser's translation into German) has even observed women who had never menstruated, but who commenced menstruating after conception took place. Beigel has described similar cases ; also Montgomery (*Signs and Symptoms of Pregnancy*, London, 1856, p. 77), who relates cases where pregnancy occurred years after menstruation ceased. In a similar case Dubois thought so little of the woman being pregnant that he lectured upon the case as one of abdominal dropsy, until the foetal pulse could be heard and the woman was delivered of a healthy child. Montgomery even treated a woman who knew herself to be pregnant only when her menses appeared stronger than usual. Cases where menstruation appeared for the first time after conception, are by no means rare. Deventer, Baudeloque, and Bush have described cases in which menstruation occurred only during pregnancy, it stopped after the birth of the child and reappeared

each time after conception took place. How it is possible still to believe that menstruation is the consequence of ovulation seems inexplicable.

In addition to the facts enumerated, we have in recent times those observations which were made since "Ovariotomy" had been practiced. That the extensive diseases affecting both ovaries were not capable of causing the cessation of menstruation was well known. Leopold (Archiv für Gynaekologie, 1874, vol. VI., p. 189) has exhaustively treated this subject, and he came to the conclusion that menstruation had nothing to do with ovulation, or the periodical ripening of the ova. An assertion which has but recently been supported by Williams' Lectures on Dysmenorrhœa (*Lancet*, 1877, vol. I, p. 635). The extirpation of both ovaries by Atlee, Peaslee, Reeves Jackson, Stohrer, Charles Clay and Spenceer Wells was not followed by the cessation of menstruation in a number of cases. Lawson Tait added two new similar ones. In both of these both ovaries were totally removed without having influenced menstruation in the least. If all these proofs are not sufficient the case of Professor Trenholme, of Montreal, ought to be conclusive proof for our statement. He extirpated both healthy ovaries in the hope that menstruation would cease, the dysmenorrhœa would thereby be cured, and a fibroid from which the patient suffered would cease growing. Menstruation, however, re-turned, but the accompanying pain ceased. Robert Battey (Transactions American Gynecological Society, vol. I, Boston, 1877, p. 101,) has removed both ovaries in ten cases without producing the cessation of menstruation in every instance. Beigel moreover refers to the structure of the ovaries, the ap-preciation of which makes it impossible to further believe in the relation existing between ovulation and menstruation. Waldeyer has shown that the number of ova in the ovaries of a child is several hundred thousands, and that their production ceases between the second and third year of the child's life. What becomes of all these ova? Corpora lutea were already found in the ovaries of newly-born infants, which do not differ from those of grown women. Ovulation takes place from the cradle to the grave, but this is not the case with menstruation. Beigel thinks he can confirm Lawson Tait's (Reeves Jackson.—The Ovulation Theory of Menstruation, New York, 1876, p. 16.) observation, that the ovulation continues, even after the cessation of menstruation (menopause) as long as there are follicles in the ovary.

CESSATION OF MENSTRUATION.

Gentlemen: In my last lecture I have explained to you the views held up to this day regarding normal menstruation and its cause. I have also convinced you, I hope, that the time of its first occurrence greatly varies in different females. The same variation I have found as to the time of the cessation of this all-important function in the persons who have consulted me, and who had passed the so-called climacteric periods of their lives. Most of these women whom I have questioned upon this subject have stated to me that they have ceased to menstruate at about the age of forty-five years. Up to sixty years one of my patients menstruated regularly; up to fifty-four years, one; to fifty-five years, one, and to fifty-two years, one.

One woman, aged forty years, when I saw her, although normally consti-tuted, and who had given birth to four children, ceased to menstruate at the

age of thirty years. Another patient of mine, who had borne six children, was found to be exceedingly anemic, and had atrophy of the uterus at the time I examined her. She was then thirty-eight years old and had not menstruated five years. She ceased to menstruate at the age of thirty-three years. Brière de Boismont found the cessation of menstruation in 181 cases to have taken place, in seven before the age of thirty years, the earliest being at twenty-one years. The earliest in Robinson's cases was at thirty-five. Szukits had two cases at thirty. Graily Hewitt's extremes were thirty and fifty-three years. Gardieu relates a case menstruating at seventy-five years. Up to sixty-five years there are a large number of cases on record. Robertson had two at sixty, and one at seventy. Szukits, one at sixty. Some well authenticated cases at ninety-one, eighty, eighty-seven, fifty-nine and seventy years of age are related by Dr. L. D. Davis. (See Graily Hewitt's work on the "Diseases of Women.") The quantity of blood lost during each menstrual period varies not less than the ages at which this function first appears and disappears for ever. Each woman has a type of her own. Temperament, occupation, constitution, hereditary peculiarities, education, different modes of life, greatly influence the quality and quantity of the blood lost during menstruation in different women. The actual quantity of blood lost by each woman who came under my observation I have not been able, of course, accurately to determine, but in many of my cases, in those wearing napkins, the change of three or four of them in twenty-four hours, was said by them to have been necessary, amounting to perhaps from three to seven ounces of blood lost during the period. I repeat, gentlemen, that you must bear in mind in your practice that normal menstruation varies to a very great extent in different females, and I fully agree with Sims, who states, in his celebrated work on "Uterine Surgery," that it should always be painless, the blood being uncoagulated, and, as a rule, returning at intervals of about twenty-eight days, lasting three, four, five days, excepting the period of gestation and lactation. I should, however, add to this, that should menstruation in a certain case or cases recur regularly every thirty or thirty-five days, and last even ten days each time, and the woman felt perfectly well, and she perhaps consulted you on account of the longer interval between her periods and the longer duration or continuance of the same than in other women, if you find nothing abnormal or pathological, upon a careful examination made from head to foot, upon this patient, you will abstain from any interference, and pronounce it a normal menstruation. The question has often been asked by my students, whether I could tell, by the aid of the microscope, the difference between menstrual blood and blood that had been lost or taken at other times, or, in other words, menstrual from other blood? I have always answered in the affirmative. Ordinary blood (human), microscopically examined, shows the well-known colored and colorless blood corpuscles with which you are no doubt familiar. The menstrual fluid, on the contrary, contains an admixture of mucus, and sometimes a few pus corpuscles, also mucin threads, and, what the real differential point is, the admixture of the ciliated epithelia—some of which have undergone a fatty degeneration—with blood corpuscles, mucous corpuscles and mucin threads. As stated above, the shedding of the mucosa of the endometrium takes place at each period, and it is the ciliated epithelium mixed with the blood found in the menstrual fluid, which enables us to differentiate between blood lost from the Schneiderian membrane of the nasal cavity, for instance, and the uterine cavity during the time of the shedding of its mucosa.

The scientific investigator, gentlemen, hardly ever troubles himself with the why and wherefore. For us it suffices to know *how* the processes or func-

tions of living organisms are performed in the majority of similarly constituted organisms; which we then denote as physiological or normal. Any great deviations from the normal we denote as pathological, or abnormal. It may be stated without fear of contradiction that Kundrat's views, based upon observations made in the laboratory, regarding the functions under consideration, are the correct ones. Let us briefly recapitulate what takes place in utero when a woman menstruates. The mucous membrane of the normally constituted uterus tumefies; the epithelium desquamates, its shedding occurs; the laying bare and the rupture of small capillaries of the same also occurs. Some of the epithelia shed show that they have undergone a fatty change—degeneration; the glands of the uterus swell, become tumefied—a greater turgescence and hyperæmia of these causes increased tension in the blood vessels of the generative organs of the female and is the usual occurrence at each period. The second point of importance which I beg you to remember is, that the so-called ovulation theory of menstruation must be given up to-day as based upon erroneous conclusions. Ovulation is coincident with but not dependent upon the process of menstruation, or vice versa. That these two functions are independent upon each other has been proved conclusively by my own observation in Dr. Nathan Bozeman's case of double ovariotomy, which I have witnessed at the New York Woman's Hospital last year, and which you may find published in the July number of this year, Vol. XXVIII., No. I, of the *Richmond and Louisville Medical Journal*, under the title "Two Cases of Double and Two of Single Ovariotomy, successfully performed by Dr. N. Bozeman, reported by Dr. Rudolph Tauszky, etc., pages 14 to 28. In this case of double ovariotomy menstruation occurred after recovery took place, although there was not a vestige of either ovary left behind. Dumreicher's cases and those reported in Dr. Paul F. Mundè's *American Journal of Obstetrics* prove the same, as stated to you in my first lecture. That I am correct in this view that menstruation is not dependent upon ovulation is further proved by the fact that women have become pregnant before they ever menstruated. I have seen several such cases in my practice. D'Ontrepont relates a case where a child nine years became a mother, her menstruation appeared for the first time several months after the birth of her child. See "*Hyrtl's Topographische Anatomie*." This case also goes to prove that Sims is in error when he says that conception hardly ever (he does not say never, but hardly ever) occurs before menstruation had taken place. Why a woman menstruates under certain conditions during a period of about thirty years of her life, we know no more than we do know why living matter—epithelia—will secrete in one locality a spermatozoon, in another an ovum, in another bile, milk, pepsin, mucous-sebaceous and sudorific matter. All these secretions, from the testicle, the ovary, the liver, the breast, the pepsin glands, the mucous, sudoriferous and sebaceous glands, etc., are the products of the little workshops called epithelia, and still how different in its ultimate result is the product of one epithelium, or say two, that of a spermatozoon with an ovum for instance, and that of a mucous corpuscle or a salivary corpuscle! Chemically and microscopically there is no great palpable or visible difference between the two forms of living matter. This secretion of the epithelia can be witnessed under the microscope upon the heated stage. My friend, Dr. Charles Heitzmann, shows this process to his classes in his laboratory; where he demonstrates the secretion of mucus from the epithelia of the intestinal tract, and jokingly styles it: Producing diarrhoea under the microscope. Of course, under the microscope the secretion is a very limited one, since the nervous influence necessary to the production of any secretion is wanting in the experiment.

The nervous influence from either the sacral or hypogastric plexus and the ganglion coccygeum of the great sympathetic are, beyond doubt, concerned in and play an important *role* in the sensibility and the vasmotor action of the uterine functions generally, and the function of menstruation can only be performed upon the condition that at certain periods an irritation of the nerve supply of the womb takes place, causing a greater afflux of blood to that organ, causing the changes already enumerated in the uterine mucosa, and the rhythmically appearing menstrual flow. That menstruation is greatly affected by fright, excitement, etc., and is therefore in a great measure dependent on nerve-influence, hardly requires further proof. I need not tax your patience by again reiterating what I consider to be normal menstruation, and what this function is due to as far as known up to this day, since I have, I think, fully considered this subject for all practical purposes. Let us, therefore, gentlemen, proceed to study the irregularities or pathological conditions giving rise to the anomalies of menstruation, and what will, I hope, interest you as gynaecologists most, the treatment which I found most useful in the cases which came under my observation.

The subject of my next lecture, therefore, will be the consideration of the anomalies of menstruation, their appreciable causes, and their appropriate treatment.

THE ANOMALIES OF MENSTRUATION.

The first anomaly of menstruation to which I wish to call your attention to-day, is that which we are accustomed to term Amenorrhœa. It is not necessary for me to define the term, since you are already familiar with its significance. Patients thus affected generally come to us with the simple complaint, "Doctor, I wish your advice on account of the stoppage of my courses, which have not appeared for two, three, or more months, sometimes for as many years;" in other cases the period has not occurred on the expected day. As you have already noticed, women keep, as a rule, an accurate account of the day and date of their menstruation, from the time of their first appearance until their final cessation. Even the most ignorant and careless class of my patients, both in my service in this institution as well as in my private practice, are generally familiar with the data of their menstrual periods, and thereby greatly aid us in the collection of facts and statistics regarding these important points. The stoppage of the monthly courses in women, say between the ages of fifteen up to forty-five or fifty years, or in females who are of age, but, from some cause or other, have never menstruated at all, you will find in your practice, in both the married and the unmarried, makes them very anxious to learn from you, if you are their attending physician, what the cause of the non-appearance of the menses might be, and what measures they should adopt to bring them on again, except, of course, during the time of uterogestation and lactation in the majority of the cases, where most women, as you know, are *a menorrhœic*. If a woman is pregnant, but is not sure of it, she also wants your opinion to clear up the doubt and to advise her whether the amenorrhœa is due to natural causes requiring no medication whatsoever or whether due to pathological changes in the generative apparatus, or to disease situated in some other organs, and whether the irregularity can be relieved by you or not. In order to do justice to your patient, you must, of

course, carefully ascertain whether she be pregnant or not. Having already spoken in a former lecture on the signs of pregnancy, the surest of these, as you recollect, being the pulsation of the foetal heart, if the foetus be living. I need therefore not repeat them here again, but one thing I wish to impress upon your minds in this connection, and that is: Never to sound or probe a uterus if there be the least probability, or even suspicion, of the woman under examination, whether married or unmarried, being pregnant. I highly value Sims' flexible metallic uterine sound; so also Prof. Thomas' elastic uterine probe. In fact, I could not do without these valuable instruments in my gynecological practice, but I never use them except in cases where I am absolutely certain that pregnancy does not exist, and that there is not the least morbid sensitiveness in and around the uterus and its adnexa. Many of the ablest gynecologists will tell you that at sometime or other, they have involuntarily, of course, produced an abortion or pelvic cellulitis, or even pelvic peritonitis by the use of the uterine sound or probe. There is too much unnecessary sounding and probing of the uterus done by gynecologists. I make this statement not with the view of criticising the practice of any of my confrères, but simply with a view of advising you to restrict the use of these useful instruments to cases only which I have already detailed to you on a former occasion. Gentlemen, excuse this little digression—which I thought important to insert here—and let us return to our study of the appreciable causes and the treatment of amenorrhœa.

One hundred and fifty women have consulted me on account of this anomaly within the past four years. Of these only *one* married woman who had never borne children, or been pregnant as far as she knew, presented herself to me for advice on account of her amenorrhœa and sterility. Her history is briefly this: She is 28 years old, married two years, of medium height, weight about 150 pounds, very robust, well formed and enjoying excellent health; had never been sick a day in her life; family history good. Has several married sisters, who have borne children. The objective symptoms explaining her anomaly were all wanting. The examination per vaginam proved the external and internal genital organs, as far as could be ascertained, to be well developed. The uterus measured by bimanual palpation about two and a half inches. Her breasts were large and well formed. In short, the closest examination revealed nothing abnormal in this woman's person, and still up to the age of twenty-eight years she had never menstruated. I asked her whether she suffered, perhaps, from what is called vicarious menstruation—the meaning of which I explained to her—but she answered in the negative. Neither had she ever had menstrual mollimina. At the same time she stated she was of an amorous disposition and enjoyed the embraces of her husband. This woman had never been ailing in her life-time, had no headache or any complaint whatsoever, still she had never menstruated, and had remained sterile after two years of married life. The husband's spermatozoa I have not had an opportunity of examining microscopically. I told this woman, as she was not sick, she required no medical treatment, and that she should trust to nature, that hers was, perhaps, a case of retarded menstruation. If menstruation were dependent on ovulation, which, as you now know it is not, we might assume that this woman had no ovaries, but as some women menstruate even without ovaries, that could not have been the cause of this woman's amenorrhœa, but could account for her sterility. Of amenorrhœic cases, from either absence of the vagina, or total atresia of the same—absence of the uterus, imperforate hymen, I have had no representatives in my own experience. But I have to mention these causes of suppression or retention of the menses to you, as you might meet with such in your

practice. One case of a girl, aged about 16 years, with an imperforate hymen and retention of the menstrual fluid I remember of having seen, at the Bellevue Hospital Medical College, in the service of Professor Isaac E. Taylor, in 1866, who lectured upon the case, and advised the opening of the vaginal outlet by a valvular incision. The doctor also dwelt upon the danger of evacuating the uterus—which could be felt immensely distended with the menstrual fluid—suddenly. The danger being the same as in paracentesis abdominis from sudden shock and collapse. Still, where by the finger in the rectum and the sound in the bladder you can detect the uterus to be present, if the vagina were imperforate, an operation is the only mode of saving such patients lives; otherwise, if left unrelieved, you may have rupture of the uterus, peritonitis or shock, and consequent death. An incision into the vagina, if it be present, or into the rectum, for the purpose of making an opening for the escape of the retained fluid, would be the only means of saving life. Dr. Graily Hewitt, of London, cites the following interesting case in his text book: "On the Diseases of Women." Congenital Absence of the Vagina Amussat in 1835, (*Gazette Medicale*), relates the following: A young lady, æt. 15, was in bad health, consulted Boyer, Marjolin, Magendie and Amussat. They found an effort at menstruation took place every month or five weeks, but without any discharge. Abdomen was swollen and the patient suffered great agony. They discovered the orifice of the urethra but no vagina. Through the rectum a large fluctuating tumor was found at the upper part of the pelvis. A sound was passed into the bladder, at the same time the walls of this viscus and those of the rectum were found in close proximity, it was thought impossible to form an artificial vagina with the knife on account of the danger of wounding the bladder or rectum. All gave up the case as hopeless, except Amussat. He depressed gradually the mucous membrane with his fingers where the vagina ought to have been, and the membrane giving away, he advanced cautiously, having a sound in the bladder and his finger in the rectum, he continued this gradual dilatation day by day, and kept it open by sponge-tents until he reached the tumor in the pelvis which he first punctured with a trocar and then enlarged with a bistouri, giving exit to a large quantity of a dark, jelly-like fluid. The patient recovered, and afterward menstruated regularly. The case, besides illustrating the possibility of often saving human life by judicious treatment where the vis medicatrix naturæ is insufficient to that effect, also proves perhaps the first application of the principle of gradual dilation of the vagina, which is to-day largely practiced by expert gynecologists with success, in partial atresia and stenosis of the vagina and the cervical-uterine cavities.

Nineteen patients consulted me on account of amenorrhœa, from what is termed retarded puberty. The ages of these girls ranged from fourteen to eighteen years, and the case stated before, of the married woman aged twenty-eight years. The girls were, most of them, ill-developed, pallid, with undeveloped breasts, poor appetite, aches and pains in different parts of their bodies, of sad and morose dispositions, very easily inclined to weep, dissatisfied with themselves and the world, bowels usually sluggish, constipated; urine, quantity and quality very variable, sometimes pale and straw-colored and abundant, at other times loaded with urates and phosphates in great abundance. Micturition often frequent and painful. Many of these girls came accompanied by their anxious mothers to consult me.

The causes were found to be either hereditary or acquired. The pallor of the skin was due to anemia, scrofula, chlorosis, syphilis, ill-nutrition of body, incipient phthisis pulmonum, etc. Want of the observance of proper hygiene regarding domicile, impure air, want of cleanliness, improper food, too hard

work, either physical or mental, unsuited to their strength. "Sublata causa tollitur effectus." Wherever practicable, the debilitating cause was sought to be removed. Avoidance of over-study or over-work, proper nourishment, and the improvement of the hygienic surroundings, were insisted upon as the *sine qua non*, or starting point in the treatment of these cases. The faulty appetite was often improved by moderate out-door exercise, using the cold wet, coarse towel for friction over the whole body every evening before going to bed, of course in inclement weather in a moderately heated room. This friction bath, continued for a few weeks, I consider a highly beneficial tonic agent in all cases of simple anemia, and consequent amenorrhœa.

In some cases, the daily simple ablution of the whole body, or the sponge bath, together with proper dietetic and hygienic measures, sufficed to restore the young sufferers to perfect health, and the occurrence or return of their monthly periods without the aid of internal remedies. The sponge bath I sometimes recommended according to Winternitz of Vienna, Austria, where the temperature of the patient showed to be 101 or 102° Fahrenheit. It was advised to be used also as a nervous stimulant. It causes such patients to feel more comfortable, and seems to be very grateful to them for a short period of time. The temperature of the body can be lowered by this method one, two, or even three degrees Fahrenheit, but this lowering is only of a very short duration, and would have to be repeated at least once every hour if any permanent benefit is to be hoped from its application. I therefore prefer the method already alluded to—the rubbing with the coarse, wet, cold towel, or by means of the wet sheet. I advise to use it in the following manner: Dip a sheet in water of a temperature ranging from 62 to 52° Fahrenheit, wring it out well and wrap it around the patient; before applying it, cool the head first by cold applications, so as to prevent a sudden congestion of the brain, which would otherwise follow. The friction bath has the advantage of being a powerful nerve stimulant, since all the peripheric terminations of the nerves are thus stimulated the very moment of their contact with the sheet. This method causes a dilatation of the peripheric blood vessels, thereby relieving congestions and hyperemic states of internal organs, and such complaints as cephalalgia, gastralgia, enteralgia, etc. It is capable of equalizing the blood current throughout the system. When the skin is dry, the urine scanty and concentrated, the bowels sluggish and constipated, we are enabled, by this friction bath with the wet sheet, to produce gentle perspiration, thus moistening and softening the skin; the secretion of urine and the alvine evacuations will be found more abundant and normal after its use. This change being produced by the stimulating and heat abstracting properties of the cold, wet sheet. We can leave on the sheet for one or more hours if necessary (as indicated by the thermometer), if there be an elevation in the temperature; as soon as it gets dry, we simply pour some water over it from time to time. Colder portions of the body are to be rubbed until they get warm, for instance, the hands and feet of anemic patients. Painful parts are covered with wet cloths beside the sheet; of course a rubber sheet is always necessary, so as to prevent the chair, sofa, or bed occupied by the patient during the time of the bath from getting wet. One rule I desire you particularly to remember in administering cold baths, or even cold applications to any part of the body, and that is: The skin must become red, never bluish or pale. Your patient should never feel chilly while in the wet sheet. If this should happen, have her well rubbed all over until she gets warm, or remove the sheet and give her some hot drink—tea, coffee, or a little warm milk and brandy, and let her go to bed at once, so as to get warmed through thoroughly.

To be continued

